

New product

PE(S) . . MW . .

Combined atmospheric and manifold-pressure compensator (ALDA)

VDT-I-403/2 En

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Technical information sheet VDT-I-403/1 En describes how the diesel fuel-injection pump PE(S) . . MW . . with governor RW . . MW . . works.

As a new variation of this pump combination a model has been designed with combined atmospheric and manifold-pressure compensator.

1. Combined atmospheric and manifold-pressure compensator (ALDA)

With pressure-charged engines, the full-load delivery is determined by a changeable i.e. manifold-pressure dependent air-charge in the engine cylinders. In the lower rotational-speed range the air charge in the engine cylinders is less and the full-load delivery must be adjusted correspondingly to the reduced air charge.

The air charge in the individual engine cylinders is dependent, however, not only on the charge-air pressure but also on the respective atmospheric pressure.

Both pressures together (charge-air pressure and atmospheric pressure) give the combined (absolute) pressure.

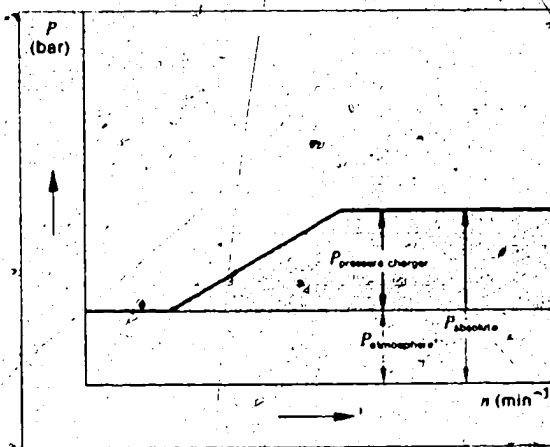


Fig. 1

As can be seen from the diagram (fig. 1), above the respective atmospheric pressure the air is compressed by the engine pressure-charger.

The result is that the prevailing pressure in the intake manifold becomes the absolute pressure.

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M20

M20

2. The function of the ALDA

The absolute pressure (atmospheric pressure + charge-air pressure) from the intake manifold of the engine affects the aneroid capsules of the ALDA aneroid box (147).

The correcting linkage (120) is positively connected to the aneroid capsules.

The linkage lever (39) of the governor linkage is connected to the template of the correcting linkage and to the fulcrum lever (6) of the governor linkage in such a way that it can move. All movements of the aneroid capsules are therefore transferred to the control rod via the correcting linkage, the template, the reverse-transfer lever and the fulcrum lever.

The more the control lever (8) is pushed towards idle, the nearer the bearing point of the linkage lever, in the template moves towards the pivot (A) of the template.

The effect of the ALDA-control decreases the more the control lever is moved in the idle direction.

When the control lever is in idle the effect of the ALDA-control approaches nil.

When the absolute pressure falls the aneroid capsules change in length, i.e. they expand. The correcting linkage is pressed downwards. The template thereby moves around the pivot (A) in the direction a_1 .

The linkage lever swings around the pivot (C) in the direction b_1 .

This causes the fulcrum lever to move around the pivot (B) in the direction C_1 .

The control rod is moved in the direction "less delivery".

When the absolute pressure increases (higher air and/or charge-air pressure) the movement takes place in the opposite direction.

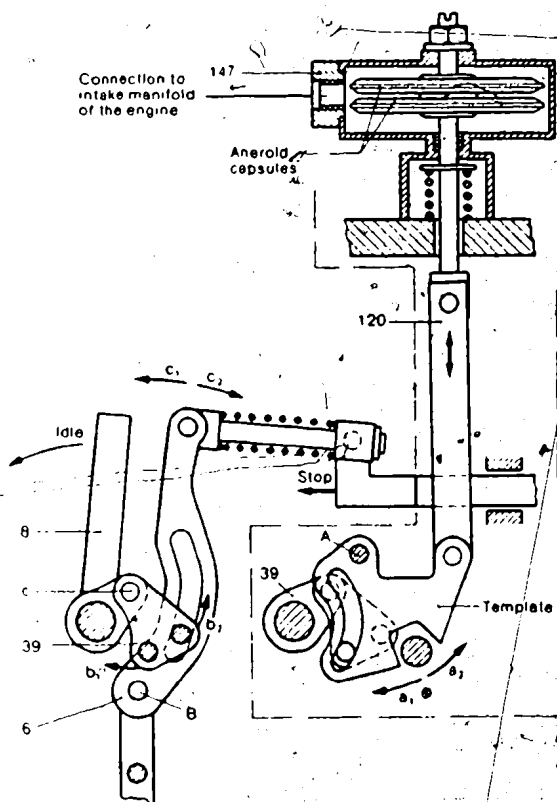
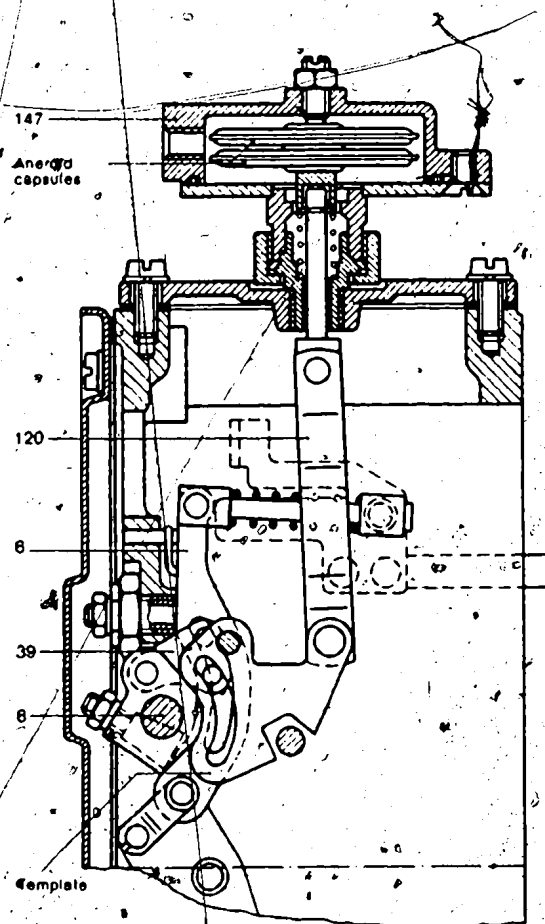


Fig 2



- A = Pivot template
- B = Pivot fulcrum lever
- C = Pivot linkage lever
- 6 = Fulcrum lever
- 8 = Control lever with setting shaft
- 39 = Linkage lever
- 120 = Correcting linkage
- 147 = Aneroid box

Fig. 3